

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1 1. (Currently Amended) A method for a wide-area file system, including a plurality of  
2 nodes storing replicas of objects, the objects being files for a file and file directories,  
3 wherein for each replica of the file an object at a node, and a parent directory[[ies]] for  
4 the file are object is replicated at the node each of a plurality of nodes, the method  
5 comprising:

6 propagating an update to a replica of the a file directory to other replicas of the  
7 file directory via a graph, wherein each replica of the file directory has edges to only a  
8 subset of the other replicas such that all the replicas of the file directory are connected via  
9 the graph; and

10 in response to receiving a propagated update to a replica of the file directory at a  
11 node, updating the replica for the file directory at the node.

1 2. (Currently Amended) The method according to claim 1, wherein each replica of an  
2 object has a backpointer including an identification of a parent directory for the objectfile  
3 and a name of the objectfile in the parent directory.

1 3. (Currently Amended) The method according to claim 2, wherein the parent  
2 directories are modified when the backpointer for a replica of an object at a node is not  
3 consistent with the parent directories for the replica of the object at the node.

1 4. (Original) The method according to claim 3, wherein modifying the parent directories  
2 occurs only after a delay.

1 5. (Original) The method according to claim 3, wherein multiple modifications to the  
2 parent directories at the node are performed according to an order in which corresponding  
3 updates occur.

1 6. (Original) The method according to claim 3, wherein a modification is performed at  
2 the node and an earlier inconsistent modification is ignored.

1 7. (Currently Amended) The method according to claim 2, wherein a directory operation  
2 affects the backpointer for the objectfile.

1 8. (Original) The method according to claim 7, wherein the directory operation is  
2 selected from a group consisting of rename, link and unlink.

1 9. (Currently Amended) The method according to claim 8, wherein when the  
2 backpointer for a replica of an object at a node is not consistent with the parent  
3 directories for the replica of the object at the node, further comprising modifying the  
4 parent directories to be consistent with the backpointer.

1 10. (Currently Amended) The method according to claim 1, wherein the replicas of the  
2 file directory include core replicas of a first type and non-core replicas of a second type  
3 ~~wherein locations of replicas of the first type are registered in a parent directory for a file~~  
4 the parent directory for the file directory having edges only to the core replicas of the file  
5 directory and each core replica of the file directory having edges to one or more of the  
6 non-core replicas of the file directory.

1 11. (Currently Amended) The method according to claim 10[[1]], ~~wherein the replicas~~  
2 ~~include replicas of a first type and of a second type and~~ wherein in response to a user  
3 accessing an object file at a node when no replica of the object exists at the node, the  
4 method further comprises steps of forming a non-core replica[[ting]] of the parent  
5 directory for the objectfile at the node and forming a non-core replica of the object  
6 ~~second type~~ at the node.

1 12. (Currently Amended) The method according to claim 10[[11]], wherein a minimum  
2 number of core replicas of the first type are maintained according to a minimum  
3 replication factor ~~for the corresponding file~~.

1 13. (Currently Amended) The method according to claim 1, wherein a replica of an  
2 object is deleted by marking the replica as invalid.

1 14. (Original) The method according to claim 13, wherein said marking the replica as  
2 invalid comprises removing the backpointer for the replica.

1 15. (Original) The method according to claim 13, further comprising periodically  
2 removing replicas marked as invalid.

1 16-55. (Canceled)

1 56. (Currently Amended) A system including:  
2 a plurality of nodes that store replicas of objects, the objects being files and file  
3 directories,

4 wherein for each replica of an object at a node, the node stores a replica of a  
5 parent directory for the object and a backpointer having an identification of a  
6 the parent directory for the object, and

7 wherein each replica of a file directory has edges to only a subset of the other  
8 replicas of the file directory such that all the replicas of the file directory are connected  
9 via the graph and the nodes are configured to propagate updates to replicas of each file  
10 directory to other replicas of the file directory via the graph.

1 57. (Currently Amended) The system according to claim 56, wherein in response to  
2 receiving a propagated update to a replica of the file directory at a node, the node updates  
3 the parent directories for the file at the node.

1 58. (Currently Amended) The system according to claim 56, wherein when a  
2 backpointer for a replica of an object at a node is not consistent with the parent  
3 directories for the replica of the object at the node, the node modifies the parent  
4 directories to be consistent with the backpointer.

1 59. (Original) The system according to claim 58, wherein the node modifies the parent  
2 directories to be consistent with the backpointer only after a delay.

1 60. (Currently Amended) The system~~method~~ according to claim 58, wherein multiple  
2 modifications to the parent directories at the node are performed according to an order in  
3 which corresponding updates occur.

1 61. (Currently Amended) The system~~method~~ according to claim 58, wherein a  
2 modification is performed at the node and an earlier inconsistent modification is ignored.

1 62. (Currently Amended) The system~~method~~ according to claim 56, wherein a directory  
2 operation is affects the backpointer for the object~~file~~.

1 63. (Currently Amended) The system~~method~~ according to claim 62, wherein the  
2 directory operation is selected from a group consisting of rename, link and unlink.

1 64. (Currently Amended) The system~~method~~ according to claim 62, wherein when a  
2 backpointer for a replica of an object at a node is not consistent with the parent  
3 directories for the replica of the object at the node, the node modifies the parent  
4 directories to be consistent with the backpointer.

1 65. (Currently Amended) The system according to claim 56, wherein the replicas of the  
2 file directory include core replicas of a first type and non-core replicas, of a second type  
3 ~~wherein locations of replicas of the first type are registered in a parent directory for the~~  
4 ~~file~~ the parent directory for the file directory having edges only to the core replicas of the  
5 file directory and each core replica of the file directory having edges to one or more of  
6 the non-core replicas of the file directory.

1 66. (Currently Amended) The system according to claim 56, wherein in response to a  
2 user accessing an object~~a file~~ at a node when no replica of the object exists at the node, a

3 non-core replica of the objectfile is and a non-core replica of the parent directory for the  
4 object are formed at the node.

1 67. (Currently Amended) The systemmethod according to claim 56, wherein a replica of  
2 an object is deleted by marking the replica as invalid.

1 68. (Currently Amended) The systemmethod according to claim 67, wherein said  
2 marking the replica as invalid comprises removing the backpointer for the replica.

1 69. (Currently Amended) The systemmethod according to claim 67, further comprising  
2 periodically removing replicas marked as invalid.